

REMARKS

The Office Action of August 24, 2004 was received and carefully reviewed. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Filed concurrently herewith is a *Request for a One Month Extension of Time* which extends the shortened statutory period of response to December 27, 2004 (December 24, 2004 is a Holiday). Accordingly, Applicants respectfully submit that this response is being timely filed.

Claims 6-8, 17-22, 25 and 49-85 were pending prior to the instant amendment. By this amendment, claim 25 has been amended to correct a typographical inconsistency. Consequently, claims 6-8, 17-22, 25 and 49-85 remain pending in the instant application.

Claims 6-7, 18-21, 25, 49, 51, 54, 57-60, 62, 64 and 78-81 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2002/0119585 to Yamazaki et al. (hereinafter Yamazaki). Claims 8, 17, 22, 25, 50, 52-53, 55-56, 61, 63, 65-77, 82-85 and 49-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki as applied to claims 6-7, 18-21, 25, 49, 51, 54, 57-60, 62, 64 and 78-81. Applicants respectfully traverse these rejections for at least the reasons provided below.

Initially, Applicants note that on page 4 of the Office Action, "claims 8, 17, 22, 25, 50, 52-53, 55-56, 61, 63, 65-77, 82-85 and 49-85..." were indicated as being rejected under 35 U.S.C. 103(a). Applicants assume that the seemingly redundant indication that claims 49-85 were rejected in the rejection of 35 U.S.C. 103(a) is merely a typographical error. If this is not the case, Applicants respectfully request clarification in the next Office Action.

Turning now to the rejection, the Office Action indicates (on page 3) that the step of "irradiating the first crystalline semiconductor film with a laser light to form a second crystalline semiconductor film having a warp" is taught by the plurality of convexes (ridges) as indicated in paragraph [0064] of Yamazaki. Moreover, the Office Action indicates that paragraph [0065] teaches a "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp. Applicants respectfully disagree with at least these aspects of the rejection.

Paragraphs [0064] and [0065] of Yamazaki state as follows:

[0064] Subsequently, a laser crystallization method is carried out to form a crystalline semiconductor film. A laser crystallization

method may be carried out after performing other known crystallizing process (thermal crystallization, or thermal crystallization using catalyst such as nickel). In this case, the laser to be used is desirably a continuously oscillating solid-state laser, gas laser or metal laser. Note that the solid-state laser includes a continuous oscillating YAG laser, YVO₄ laser, YLF laser, YAlO₃ laser, glass laser, ruby laser, alexandrite laser and Ti: sapphire laser. The gas laser includes a continuous oscillating KrF excimer laser, Ar laser, Kr laser and CO₂ laser. The metal laser includes a continuous oscillating helium-cadmium laser, copper vapor laser and gold vapor laser. Energy density is, e.g. approximately 0.01-100 MW/cm² (preferably 0.1-10 MW/cm²) wherein irradiation is carried out by moving the stage at a velocity of approximately 0.5-2000 cm/s relatively to the laser light. Laser crystallization forms a plurality of convexes (ridges) on the surface of a crystalline semiconductor film.

[0065] Subsequently, a heating process is carried out. The heating process is made, e.g. in a nitrogen atmosphere, by turning on the eleven halogen lamps (infrared light) arranged under the substrate and ten above thereof for 1-60 seconds (preferably 30-60 seconds), 1-10 times (preferably 2-6 times). Although the heat to be supplied (as measured by a thermo-couple buried in a silicon wafer) by the halogen lamps is 700-1300 °C., the conditions of the optimal heating process differ depending upon a state of a substrate or semiconductor film used, etc. and may be properly determined by a practitioner. However, the heating process, taking account of mass-production process, is desirably at approximately 700-750 °C. for within 5 minutes.

Referring to paragraphs [0064] and [0065], Applicants respectfully submit that Yamazaki does not disclose "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp" as set forth in independent claims 6 and 7, "second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp as recited in independent claim 8, or "heating the semiconductor film in order to decrease the warp" as variously recited in independent claims 78 and 82. Referring to FIG. 1B of the Yamazaki publication, a plurality of ridges are formed and thereafter reduced when a subsequent heating process is carried out. However, there is no disclosure or suggestion of heating to reduce a warp in a crystalline semiconductor film, as current set forth in the claims.

Additionally, although Yamazaki teaches that an internal stress is relaxed to thereby form ridges, as indicated in paragraph [0009], and the ridges are reduced by a heat-process, as

indicated in paragraph [0067], there appears to be no disclosure of "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp" as set forth in independent claims 6 and 7, "second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp as recited in independent claim 8, or "heating the semiconductor film in order to decrease the warp" as variously recited in independent claims 78 and 82. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

Applicants respectfully submit that dependent claims 17-22, 25 and 49-77, 79-81 and 83-85 are allowable for at least the same reasons discussed above with regard to the independent claims, as well as for reasons of their own.

In view of the foregoing, it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 6-8, 17-22, 25 and 49-85 be allowed and that the application be passed to issue. If a conference would expedite prosecution of the instant application, the Examiner is hereby invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,



Brian C. Oakes
Registration No. 41,467

NIXON PEABODY LLP
Suite 900, 401 9th Street, N.W.
Washington, D.C. 20004-2128
(202) 585-8000